



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Edh

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,431	06/28/2001	Kenneth W. Brinkerhoff	MRNRP003	8237
22434	7590	10/04/2005	EXAMINER	
BEYER WEAVER & THOMAS LLP P.O. BOX 70250 OAKLAND, CA 94612-0250			ADHAMI, MOHAMMAD SAJID	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/896,431	Applicant(s) BRINKERHOFF ET AL.	
	Examiner Mohammad S. Adhami	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/28/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 14 recites the limitation "the data parcel" in Claim 14 line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1-5,8,9,11,12,14-16,19,20,22-24,27,28,30-32,35,36,41-44,47-53,56-59,62-64, and 66 are rejected under 35 U.S.C. 102(b) as being anticipated by Brownhill (US 5,875,189).

Re claim 1,41, and 66:

Brownhill discloses "a method for modifying at least one data pointer associated with a multientity queue, the method comprising: reading a first content at a first address of a free queue old pointer in the multientity queue"

(Col. 5 lines 34-35 "Then there is the step of reading the cell 14 to which the pointer 16 is pointer"), "using the first content as a second address to read a second content at the second address" (Col. 5 lines 56-57 "After the pointing step, there can be the step of reading the second cell 14b"), "storing the second content into the first address of the first queue old pointer" (Col. 5 lines 40-42 "there is preferably the step of pointing the read pointer 16 to the second cell 14b"), "and storing the first content into a third memory address of a first entity queue new pointer" (Col. 5 lines 43-44 "there can also be the step of sending the cell 14a out of the port 18a" where the port has "first entity queue new pointer" Col. 5 lines 61-62 "preparing a stop pointer 26 value for the port 18").

Brownhill additionally discloses "a memory storing a multientity queue; and a system capable of executing computer program instructions" (Col. 1 lines 40-43 "The prior art for performing multicast in an ATM switch using multiple VPI/VCIs is to create and store multiple copies of the cell at some point within the ATM switching system" where the ATM switching system is capable of executing computer program instructions).

Re claim 11 and 49:

Brownhill discloses "a method for modifying at least one data pointer associated with a multientity queue, the method comprising: reading a first content indicated by an old free queue pointer" (Col. 5 lines 34-35 "Then there is the step of reading the cell 14 to which the pointer 16 is pointer"), "using the first content to access a second content in the multientity queue" (Col. 11 lines 60-63

"reading the cell pointer...of the first ATM cell...which points to the second ATM cell...After the step of reading the cell pointer...there can be step of reading the second ATM cell"), "storing the second content in the first free queue pointer" (Col. 5 lines 40-42 "there is preferably the step of pointing the read pointer 16 to the second cell 14b"), "reading a third content from a new first entity pointer" (Col. 9 lines 57-58 "This cell 14 will be read out, where cell 14 contains a "third content" and a new first entity pointer is), "using the third content to access a first memory address in the queue; and storing the first content in the first memory address and in the new first entity pointer"(Col. 12 lines 54-55 "the node address pointer...will point back to the first node...in the address linked list" where the "first content" remains at the first memory address and the "third content's" pointer, ("the new entity pointer") is shown in Figure 22 with in reference 72, allows access to the first memory address).

Brownhill additionally discloses "a memory storing a multientity queue; and a system capable of executing computer program instructions" (Col. 1 lines 40-43 "The prior art for performing multicast in an ATM switch using multiple VPI/VCIs is to create and store multiple copies of the cell at some point within the ATM switching system" where the ATM switching system is capable of executing computer program instructions).

Re claim 22 and 57:

Brownhill discloses "a method for modifying at least one data pointer associated with a multientity queue, the method comprising: accessing a first

memory address using a first pointer corresponding to a first entity; reading a first content at the first memory address" (Col. 5 lines 34-35 "Then there is the step of reading the cell 14 to which the pointer 16 is pointer"), "using the first content to access a second memory address in the queue" (Col. 5 lines 56-57 "After the pointing step, there can be the step of reading the second cell 14b"), "reading the second content from the second memory address (Col. 11 lines 62-63 "After the step or reading the cell pointer...there can be the step of reading the second ATM cells"); and storing the second content in a third memory address accessible by a second pointer, wherein the second content is stored directly in the third memory address"(Col. 11 lines 39-41 "there are preferably the steps of transmitting the first ATM cell...out the first port...sequentially to additional addresses and additional nodes" where this process can be applied to the "second content". Thus, the second content can be read, like the first content was, and stored in the third memory address. The second pointer is shown in Figure 22 in reference 72).

Brownhill additionally discloses "a memory storing a multientity queue; and a system capable of executing computer program instructions" (Col. 1 lines 40-43 "The prior art for performing multicast in an ATM switch using multiple VPI/VCIs is to create and store multiple copies of the cell at some point within the ATM switching system" where the ATM switching system is capable of executing computer program instructions).

Art Unit: 2662

Re claim 30 and 64:

Brownhill discloses “a method for modifying at least one data pointer associated with an entity in a multientity queue, the method comprising: reading a first content from a first memory address in the queue pointed to by a first pointer” (Col. 5 lines 34-35 “Then there is the step of reading the cell 14 to which the pointer 16 is pointer”), “using the first content to access a second memory address in the queue; reading from the second memory address a second content” (Col. 11 lines 60-63 “reading the cell pointer...of the first ATM cell...which points to the second ATM cell...After the step of reading the cell pointer...there can be step of reading the second ATM cell”), “storing the second content in a second pointer wherein the second pointer corresponds to the last entity in the queue to process a data parcel” (Col. 11 lines 39-41 “there are preferably the steps of transmitting the first ATM cell...out the first port...sequentially to additional addresses and additional nodes” where this process can be applied to the “second content”. Thus, the second content can be read, like the first content was, and stored in the third memory address. The second pointer is shown in Figure 22 in reference 72, corresponding to the “last entity”, the third cell); “reading a third content from a third memory address in the queue pointed to by a second pointer” (Col. 9 lines 57-58 “This cell 14 will be read out, where cell 14 contains a “third content” and Figure 22 reference 72 shows a “third content” being pointed to by a second pointer), “and storing the first content into a third memory address (Col. 11 lines 39-41 “there are

Art Unit: 2662

preferably the steps of transmitting the first ATM cell...out the first port...sequentially to additional addresses and additional nodes” where one of the additional addresses could be the third memory address).

Brownhill additionally discloses “a memory storing a multientity queue; and a system capable of executing computer program instructions” (Col. 1 lines 40-43 “The prior art for performing multicast in an ATM switch using multiple VPI/VCIs is to create and store multiple copies of the cell at some point within the ATM switching system” where the ATM switching system is capable of executing computer program instructions).

Re claim 2 and 42:

Brownhill discloses when a “multientity queue is initially empty” (Col. 13 line 14 “If node X is the only node in the address linked list”).

Re claim 3:

Brownhill discloses “storing the first content into a third memory address...[comprising] storing the first content into a plurality of memory addresses corresponding to a plurality of entity queue new pointers” (Col. 11 lines 39-41 “there are preferably the steps of transmitting the first ATM cell 14a out the first port 18 sequentially to additional addresses and additional nodes”).

Re claim 4,15,23,31,43,52, and 58:

Brownhill discloses having a “method implemented in a traffic handling device” (Col. 1 lines 44-45 “The present invention relates to an efficient method and apparatus for multicasting a cell”).

Art Unit: 2662

Re claim 5,16,24,32,44,53, and 59:

Brownhill discloses a "traffic handling device...[being] configured to process data using Asynchronous Transfer Mode (ATM) protocol" (Col. 1 lines 21-22 "in multicast (i.e. the transmission of a single ATM cell to multiple destinations)").

Re claim 8,19,27,35,47,56, and 62:

Brownhill discloses a "method...[being] implemented in a cell switch" (Col. 1 lines 29-31 "The multicast function can be limited to the act of causing an individual ATM cell to be transmitted by multiple output ports of an ATM switching system").

Re claim 9,20,28,36,48, and 63:

Brownhill discloses a cell switch implementing "the multientity queue and the cell switch...[being] controlled by a scheduler" (Col. 9 lines 1-2 "The system...is comprised of a scheduler").

Re claim 12 and 50:

Brownhill discloses a queue that "is initially populated with content" (Col. 13 line 17 "in order to insert node X into the list").

Re claim 14 and 51:

Brownhill discloses a "method...[being] implemented in a cell switch" (Col. 1 lines 29-31 "The multicast function can be limited to the act of causing an individual ATM cell to be transmitted by multiple output ports of an ATM switching

Art Unit: 2662

system” where the switching system determines which entity receives the “data parcel”).

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 38 is rejected under 35 U.S.C. 102(e) as being anticipated by Walsh (US 6,621,825).

Walsh discloses “at least one processor” (Col. 4 lines 11-12 “The processing module...may be a single processing entity or a plurality of processing entities”), “memory” in which the processor can store “a plurality of data structures, including a multientity queue data structure” (Col. 4 lines 31-34 and 41-43 “The memory...stores operational instructions that, when executed by the processing module... cause the processing module to perform functions required to provide per connection queuing of multicast transmissions...[which each include] a free list, a root queue, a segment queue, and a plurality of leaf queues”), “a plurality of data entries, an entry having at least one pointer to another entry in the queue” (Col. 5 lines 18-20 “the root queue...which is preferably a linked list structure, includes three cells, A, B, and C that are linked together via next cell pointers” and Col. 5 lines 27-28 “the free list...includes

three available entries D,E, and F, each having a next cell pointer value”), “at least one pair of data queue pointers representing a first entity, the pair of data queue pointers having a queue new pointer and a queue old pointer” (Col. 5 lines 30-32 “the root queue context information contains...a queue head pointer (e.g. A)...and a queue tail pointer (e.g. C)), “the pair of data queue pointers representing an entity receiving a data parcel, where the queue new pointer accepts a new value being inserted into the multientity queue” (Col. 5 lines 39-44 “The root queue...[is] adjusted to include the newly added cell. In particular for the root queue...the next cell pointer of cell C is updated to point to cell D” where D is a new value being inserted into the queue), “and the queue old pointer releases an old value from the multientity queue” (Col. 6 line 5 “The bottom egress connection has transmitted cell A” where the egress connection transmission is dequeuing Col. 6 line 15 “dequeuing (transmission over the egress connection)”), “such that when a data parcel is passed from the first entity to a second entity, the first entity does not dequeue the queue old pointer” (Col. 5 lines 43-44 “a queue head pointer of A, and a queue tail pointer of D” where D is a “parcel” that was passed from the “second entity” to the “first entity” and the queue head pointer of A remained after D was added).

Art Unit: 2662

8. Claim 39,40, and 65 are rejected under 35 U.S.C. 102(e) as being anticipated by Lanteigne (US 6,757,756).

Lanteigne discloses "completing processing of a data parcel by a first entity; making a switch request to a first component capable of performing data pointer updates, the request being made by the first entity" (Col. 3 lines 35-37 "application software takes ownership of the write pointer to enqueue a data element for service by the IO service layer"), "updating a data pointer for a second entity by the first component wherein the data pointer is dequeued from the first entity and enqueued to the second entity in a single operation; and alerting the second entity so that the second entity can begin processing the data parcel" (Col. 3 lines 45-50 "The read pointer controls the dequeuing of data elements from the queue for processing by either the IO service provider or the software application. Specifically, the read pointer sequentially processes the data elements previously enqueued by operation of the write pointer").

Lanteigne additionally discloses "a memory storing a multientity queue; and a system capable of executing computer program instructions" and "a computer program product including a computer usable medium having computer readable code embodied therein, the computer readable code including computer code for implementing the method" (Col. 3 lines 20-22 "the present invention provides a machine readable storage medium containing a program element to implement a queuing system").

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 10,21,29,and 37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brownhill.

Brownhill meets all the limitations of the parent claims.

Brownhill does not explicitly disclose “a computer program product including a computer usable medium having computer readable code embodied therein, the computer readable code including computer code for implementing the method” described in parent claims.

Software development has enabled those skilled in the art to implement systems and methods that operate faster, more efficiently, and at a fraction of the cost of hardware implementations.

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the system/method of modifying data pointers in a computer program on a computer-readable medium, thereby providing the functionality of the system and method at greater speed and less cost than an equivalent hardware implementation.

11. Claims 6,7,13,17,18,25,26,33,34,45,46,54,55,60, and 61 rejected under 35 U.S.C. 103(a) as being unpatentable over Brownhill in view of Chong (US 6,724,767).

Art Unit: 2662

As discussed above, Brownhill meets all the limitations of the parent claims.

Brownhill does not explicitly disclose a "traffic handling device [that] is configured to process data using Frame Relay protocol.

Chong discloses a "traffic handling device [that] is configured to process data using Frame Relay protocol" (Col. 5 lines 62-64 "Furthermore, transmitter block...is capable of accepting data packets and transmitting the data using PPP or Frame Relay").

Brownhill and Chong are analogous because they both pertain to link list structures.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Brownhill to include a traffic handling device that is configured to process data using Frame Relay in order to offer services compatible to mobile users of different mobile system protocols.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Caldara (US 5,872,769) show multientity queues with pointers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad S. Adhami whose telephone number is (571)272-8615. The examiner can normally be reached on Monday-Friday 8-4:30.

Art Unit: 2662

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571)272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MSA 9/30/2005



HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600